

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

2A2
Revision 7

CAMAIR
480

March 13, 2002

TYPE CERTIFICATE DATA SHEET NO. 2A2

Type Certificate Holder Fred Garcia
P.O. Box 231
Remsenburg New York 11960

I. - Model 480, 4 PCLM (Normal Category), Approved May 12, 1955

Engine 2 Continental O-470-B (See Item 107 for optional engine)

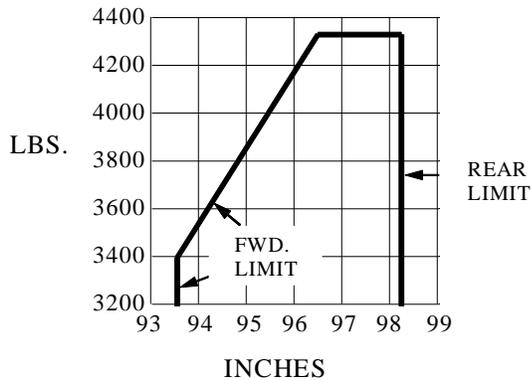
Fuel 91/96 minimum grade aviation gasoline

Engine Limits For all operations, 2600 rpm (240 hp)

Airspeed Limits

Maneuvering	148 mph	(129 knots)
Maximum structural cruising	180 mph	(156 knots)
Never exceed	220 mph	(191 knots)
Flaps extended	120 mph	(104 knots)
Landing gear extended	120 mph	(104 knots)

C. G. Range (+96.5) to (+98.2) at 4323 lb.
(landing gear extended) (+93.5) to (+98.2) at 3400 lb. or less
Straight line variation between points given.



Empty Weight C. G. Range None

Maximum Weight 4323 lb.

Number of Seats 4 (2 at +96, and 2 at +132)

Maximum Baggage Nose compartment - 100 lb. (+32)
Rear compartment - 180 lb. (+139)

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Address change for Fred Garcia

<u>Fuel Capacity</u>	107.5 gallons total usable (2 interconnected main tanks in wing center section, 39.5 gallons at +103, and two tip tanks, 34.0 gallons each at +107)																		
<u>Oil Capacity</u>	6 gallons total usable (3 gallons integral sump in each engine) (+60)																		
<u>Control Surface Movements</u>	<table> <tr> <td>Elevators</td> <td>35° Up</td> <td>16° Down</td> </tr> <tr> <td>Elevator Trim Tab</td> <td>23° Up</td> <td>29° Down</td> </tr> <tr> <td>Rudder</td> <td>20° Left</td> <td>20° Right</td> </tr> <tr> <td>Rudder Trim Tab</td> <td>24° Left</td> <td>24° Right</td> </tr> <tr> <td>Aileron</td> <td>23° Up</td> <td>17° Down</td> </tr> <tr> <td>Flaps</td> <td></td> <td>35° Down</td> </tr> </table>	Elevators	35° Up	16° Down	Elevator Trim Tab	23° Up	29° Down	Rudder	20° Left	20° Right	Rudder Trim Tab	24° Left	24° Right	Aileron	23° Up	17° Down	Flaps		35° Down
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<u>Serial Numbers Eligible</u>	CAMAIR Serial Numbers 1-050 and up. Serial Numbers 1-081 and up are equipped with a 24-volt electrical system.																		
<u>Required Equipment</u>	In addition to the pertinent required basic equipment specified in CAR 3, the following items of equipment must be installed: 1, 102, 103, 104 or 109*, 105, 201, 202, 205, 206, 304 or 305*, 401(a), 402.																		

Specifications Pertinent to All Models

<u>Datum</u>	Fuselage Station 0, 93.25 inches forward of the forward bolt centerline (jig point) in wing lower surface bolting angle.
<u>Leveling Means</u>	External lugs on right side of fuselage at Station 58 and Station 89.4.
<u>Certification Basis</u>	Type Certificate No. 2A2 (CAR 3 through Amendment 3-7).
<u>Production Basis</u>	None. Prior to original certification an FAA representative must perform a detailed inspection for workmanship, materials, and conformity with the approved technical data, and a check of the flight characteristics.
<u>Equipment</u>	Items marked with an asterisk (*) are eligible only on aircraft equipped with 24-volt electrical system.

Propellers and Propeller Accessories

1. (a) 2 Hartzell feathering type propellers 128 lb. (+40)
Hubs HC-82XF-2B, blades 8433-2
Diameter: Maximum 83 inches, Minimum allowable for repairs 80.5 inches
No further reduction permitted.
Pitch settings at 30 inch station: Low 12°, High (Feathered) 78°.
Placard required: "Avoid continuous ground operation between 2200 and 2500 rpm."
- (b) 2 governors, Hamilton Standard 1Q12 or Woodward 210065 8 lb. (+46)
- (c) 1 propeller spinners, Hartzell bulkhead C-8067-1 and Hartzell dome C-888 7 lb. (+37)
2. (a) 2 Hartzell feathering-type propellers 128 lb. (+40)
Hubs 82XF-2B, blades 8433-4 required with Item 107.
Diameter: Maximum 80 inches, Minimum allowable for repairs 78 inches.
Pitch settings at 30 inch station: Low 13.5°, High 35°, (Feathered) 78°.
- (b) 2 governors, Hamilton Standard No. 1Q12 or Woodward 210065 8 lb. (+46)
- (c) 2 propeller spinners, Hartzell bulkhead C-807-1 and Hartzell dome C-888 7 lb. (+37)
3. (a) 2 Hartzell feathering-type propellers 130 lb. (+40)
Hubs HC-A2XF-2, blades 8433-04; with Item 107.
- (b) 2 governors, Hartzell B-4-3; with Item 107.
- (c) 2 propeller spinners, Hartzell bulkhead C-987-1, and Hartzell dome C-888 7 lb. (+37)

Engine and Engine Accessories - Fuel and Oil Systems

101. 2 starters, Delco-Remy 1109471	32 lb. (+75)
102. 2 oil radiator, Harrison 8522493	13 lb. (+48)
103. 2 fuel pumps, Lear RD-7430-2	2 lb. (+76)
104. 2 fuel boost pumps, Lear RG-10340	14 lb. (+70)
105. 2 hydraulic pumps, New York Air Brake 67-AC-025 (67A025)	4 lb. (+76)
106. 2 vacuum pumps, Pesco 3P-194-E	8 lb. (+77)
107. 2 Continental IO-470-D engines (Same limits as for O-470-B). Engine mount modification required per CAMAIR Drawing 1-1021-19 modified by E.O. 947. Installation to be in accordance with CAMAIR Drawing 1-1081, Revision A. Fuel 100/130 minimum grade gasoline Propeller as listed under Item 2, and Item 401(c) required. The propeller must be installed in the 102° position in relation to the No. 1 crank pin location. This is the position the propeller is in when the dowel pins are located 90° to the centerline of the blades and in the only dowel holes in the engine.	Use Actual Weight Increase
*108. 2 starters, Delco-Remy 1108234	32 lb. (+75)
*109. (a) 2 fuel boost pumps, Lear RG-9480A	14 lb. (+70)
(b) 2 fuel boost pumps, Weldon 4032-B; per CAMAIR Drawing 1-1052	13 lb. (+70)
110. 20 gallon auxiliary fuel tank; installed per CAMAIR Drawing 1-1085	19 lb. (+151)

Landing Gear and Flats

210. Two main wheel-brake assemblies, 6.50-8 Goodyear wheel assy. No. 9531319, brake assy. No. 9531138	18 lb. (+114)
101. Two 7.00-8 main wheel tires, y-ply rating, with tubes	31 lb. (+114)
205. One 7.00-6 nose wheel assy., Type III, Firestone 6C-5 or Goodrich 613MD	5 lb. (+20)
206. One 6.00-6 nose wheel tire, 6-ply rating, with tube	9 lb. (+20)

Electrical Equipment

301. 2 generators, Delco-Remy 1001892	33 lb. (+74)
302. 2 generator regulators, Delco-Remy 1118840	4 lb. (+153)
303. Paralleling relay, Delco-Remy 1116887	1 lb. (+153)
304. Battery, 12-volt, Gould U-37	37 lb. (+151)
*305. Battery, 12-volt (2) Reading or Exide, S-24	46 lb. (+151)
*306. Generator voltage regulator (2) Delco-Remy, 1118976	4 lb. (+153)
*307. Starter relay (2) Autolite or Hart, B-8	2 lb. (+153)
*308. Battery relay (2) Autolite or Hart, B-4	2 lb. (+153)

*309. Generator parallel relay, Delco-Remy, 1116902	2 lb. (+153)
*310. Generator, 25-amp. (2), Delco-Remy, 1101911	38 lb. (+74)
*311. 2 generators, 50 amp., Delco-Remy, 1105057	48 lb. (+74)

Interior Equipment

401. (a) FAA approved Airplane Flight Manual, dated September 20, 1955 (b) AFM Supplement for Lear L-2B Autopilot, dated June 25, 1955 (c) FAA Approved Airplane Flight Manual, Revision 3, dated March 18, 1959, pertinent to Items 2 and 107. (d) AFM Supplement for Mitchell Autopilot AK045 (11-14-55) (e) AFM Supplement covering approved operation of Auxiliary fuel tank	neg
402. Hand hydraulic power and control unit per CAMAIR Drawing No. 1-4005	3 lb. (+80)
403. (a) Heater assembly, Stewart Warner 940-B12, installed in accordance with CAMAIR Drawing 1-4030. *(b) Heater assembly, Stewart Warner 940-B24 (24v), installed per CAMAIR Drawing 1-4030.	20 lb. (+45) 20 lb. (+45)
404. Automatic pilot, Lear L-2B, installed in accordance with Lear Drawing No. 82894 and CAMAIR Engineering Order No. 461. Servo Stall torque measured on the ground: Elevator 30 ± 5 in. lb.; Aileron 25, +0, -10 in. lb; Rudder 50, +10, -0 in. lb. Model 121G servo unit with 1-5/8 in. diameter capstans used.	41 lb. (+170)
405. Mitchell Autopilot Model AKO45 installed in accordance with Mitchell Bulletin No. 109 (wt. does not include gyros)	10 lb. (+58)
501. Wing Fairings; when installed per CAMAIR Drawing 1-3041	7 lb. (+168)
503. Grimes, D-7080, Rotating Beacon, when installed as per CAMAIR Drawing 1-4144	1 lb. (+305)
505. Flush Windshield Installation, when installed as per CAMAIR Drawing 1-4008	2 lb. (+80)
NOTE 1.	Current weight and balance report, including list of equipment included in certificated weight empty, and loading instructions must be in each aircraft at the time of original airworthiness certification and at all times thereafter (except in the case of air carrier operators having an approved weight control system).
NOTE 2.	In addition to the placards specified in the Airplane Flight Manual, Item 401(a), the following placard must be displayed in front of and in clear view of pilots when propeller Item 1 is installed: "Avoid continuous ground operation between 2200 and 2500 rpm."
NOTE 3.	All of the aircraft covered by this specification are conversions of the single-engine Navion, Specification A-782. Aircraft produced under this type certificate will be identified by CAMAIR name-plate only, and airworthiness considerations pertaining to the single-engine Navion only do not apply to the CAMAIR 480.

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